

## Report on some Abnormal Chitons from California and British Columbia

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IT CAN GENERALLY BE SAID that chitons have 8 plates. But when collecting these mollusks one finds that this is not always the case. Specimens with 6, 7, or even 9 plates are sometimes found. CHACE & CHACE (1930) and ROTH (1966) list a total of 14 specimens collected with less than the normal 8 valves or plates. BERRY (1935) lists a specimen with 9 valves. Bringing the records up to date, we offer a list of 24 specimens which have less than the normal 8 valves. These specimens have all been collected in California, with one exception.

### *Cyanoplax dentiens* (GOULD, 1846)

- (1) collected May 14, 1967 on a -0.6 foot (ft. hereafter) tide at Frenchman's Reef, San Mateo County, California; 8.5 mm long, 5.6 mm wide in dry condition.
- (2) coll. March 24, 1968, -0.6 ft. tide at Pigeon Point, San Mateo County, California by Mrs. John (Salle) Crittenden; 10.0 mm long and 6.0 mm wide in alcohol (Crittenden collection).

### *Ischnochiton radians* CARPENTER in PILSBRY, 1892

collected February 2, 1969 on a -0.7 ft. tide at Carmel, Monterey County, California by Mike Burghardt; 22.3 mm long and 13.7 mm wide in alcohol.

### *Katharina tunicata* (WOOD, 1815)

collected June 23, 1966 on a 0.9 ft. tide at Victoria, British Columbia, Canada; 61.6 mm long and 39.5 mm wide in dry condition.

### *Lepidozona californiensis* (BERRY, 1931)

collected December 30, 1967 on a -1.8 ft. tide at Doheny Beach, Dana Point, Orange County, California; 4 specimens: 7.8 mm × 5.0 mm, 10.8 mm × 7.1 mm, 19.1 mm × 11.9 mm, and 20.6 mm × 12.3 mm in length and width, respectively, in alcohol.

### *Lepidozona cooperi* (PILSBRY, 1892)

- (1) collected in 1958 at "Monolith Beach" near Pescadero, San Mateo County, California; 26.7 mm long and 14.7 mm wide in semi-curved dry specimen.
- (2) collected July 4, 1966 on a -0.9 ft. tide at Moss Beach, San Mateo County, California; 23.5 mm

long and 16.0 mm wide in dry condition.

- (3) collected May 18, 1968 on a -0.6 ft. tide at Bodega Bay (breakwater), Sonoma County, California by Mrs. John (Salle) Crittenden; 29.0 mm long and 18.5 mm wide in alcohol (Crittenden collection).

### *Mopalia ciliata* (SOWERBY, 1840)

- (1) collected November 12, 1966 on a -1.2 ft. tide at Pigeon Point, San Mateo County, California; 32.0 mm long and 20.0 mm wide in dry condition.
- (2) collected March 24, 1968 on a -0.6 ft. tide at Pigeon Point, San Mateo County, California by Mrs. John (Salle) Crittenden; 26.5 mm long and 17.8 mm wide in alcohol (Crittenden collection).
- (3) collected May 18, 1968 on a -0.6 ft. tide at Bodega Bay (breakwater), Sonoma County, California; 30.7 mm long and 22.2 mm wide in alcohol.
- (4) collected June 28, 1968 at 50 - 60 ft. with SCU-BA gear by Walter Schneebeli in Monterey Bay (off breakwater), Monterey County, California; 34.3 mm long and 22.9 mm wide in alcohol.
- (5) collected March 23, 1969 on a -0.6 ft. tide at Bodega Bay (breakwater), Sonoma County, California; 15.3 mm long and 8.6 mm wide in alcohol.

### *Mopalia lignosa* (GOULD, 1846)

- (1) collected June 11, 1968 on a -2.1 ft. tide at Carmel, Monterey County, California; 17.2 mm long and 13.9 mm wide in alcohol.
- (2) collected at the same station as the preceding specimen, by Mrs. John (Salle) Crittenden; this six-plate specimen measures 37.0 mm long and 27.9 mm wide in alcohol (Crittenden collection).

### *Mopalia muscosa* (GOULD, 1846)

collected March 5, 1967 on a -0.5 ft. tide at Frenchman's Reef, San Mateo County, California; 36.6 mm long and 23.1 mm wide in dry condition.

### *Nuttallina californica* (NUTTALL in REEVE, 1847)

collected May 22, 1966 on a -1.3 ft. tide at Carmel, Monterey County, California by Mike Burghardt; 16.3 mm long and 6.7 mm wide in dry condition.

### *Nuttallina fluxa* (CARPENTER, 1864)

collected December 27, 1966 on a -1.1 ft. tide at Refugio Beach, San Luis Obispo County, California; 11.3 mm long and 8.3 mm wide in semi-curved dry condition.

### *Stenoplax heathiana* BERRY, 1945

collected March 5, 1967 on a -0.5 ft. tide at Frenchman's Reef, San Mateo County, California; 60.1 mm long and 24.5 mm wide in dry condition (re-articulated).

### *Tonicella lineata* (WOOD, 1815)

- (1) collected July 4, 1966 on a -0.9 ft. tide at Moss Beach, San Mateo County, California; 9.0 mm long and 6.6 mm wide in dry condition.

(2) collected March 24, 1968 on a -0.6 ft. tide at Pigeon Point, San Mateo County, California; 22.2 mm long and 16.5 mm wide in alcohol.

Unless otherwise noted all of the specimens listed above were collected by the authors and are in their private collection.

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- ROTH, BARRY  
1966. Some abnormal chitons from Washington State. *The Veliger* 9 (2): 249-250; 1 text fig. (1 October 1966)

## New Range for

*Mopalia hindsii recurvans* BARNAWELL, 1960

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PREVIOUSLY *Mopalia hindsii recurvans* BARNAWELL, 1960 has been restricted in recorded locality to San Francisco Bay, California. BARNAWELL states that he found the subspecies living with *M. h. hindsii* (REEVE, 1847) which outnumbered the new taxon by a ratio of 9 : 1. In recent months, while we were collecting on the breakwater at Doran County Park, Bodega Bay, California we obtained a number of this subspecies. This extends the recorded range 14 miles to the north and indicates that this subspecies is not limited to the San Francisco Bay as previously believed. This time *M. h. recurvans* outnumbered *M. h. hindsii* by a ratio of 4 : 1. Another interesting fact was that the subspecies *M. h. recurvans* was found living on the channel side of the breakwater where the current was fairly strong and the water clear while the *M. h. hindsii* were generally found on the bay side of the breakwater where the water was calmer but the animals were covered with mud and silt. However, this was not the case in 100% of the instances.

Specimens from the Bodega Bay colony were compared with Paratypes nos. 2 and 3 in the California Academy of Sciences collection (CAS nos. 12141 and 12142) and were found to be identical. The taxonomic characteristics

mentioned by BARNAWELL (1960) are easily noted in this colony. With both *Mopalia hindsii hindsii* and *M. h. recurvans* living in the same locality and with a strong preference for a certain ecological location it would seem that there is a good case for raising the subspecies to specific rank. Further study may resolve the problem.

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1960. *Mopalia hindsii recurvans*, subsp. nov. (Amphineura) *The Veliger* 3 (2): 37-40; pl. 6 (1 October 1960)

Range Extension of *Tyrodina fungina*  
in the Gulf of California

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ON MAY 23, 1969, one living specimen of *Tyrodina fungina* GABB, 1865 was obtained while we were SCUBA diving in 30 feet of water on the west side of Isla Espiritu Santo in the Gulf of California, Mexico. It was found on a sponge with a purple surface on an area where the yellow internal tissues were exposed, thus suggesting feeding activity by the opisthobranch. The interior tissues of the sponge were similar in color and texture to *Verongia thiona* DE LAUBENFELS, 1930, the sponge upon which *Tyrodina* occurs in southern California (LANCE, 1961).

*Tyrodina fungina* has been reported from the Gulf of California only once before (DUSHANE, 1966). In this instance one specimen was collected intertidally at Guaymas, about 300 miles due north of Isla Espiritu Santo. *Tyrodina* has been reported along the Pacific coast from Cayucos, California, to Todos Santos, Mexico (SPHON & LANCE, 1968).

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